

# REPORT DOCUMENTATION PAGE

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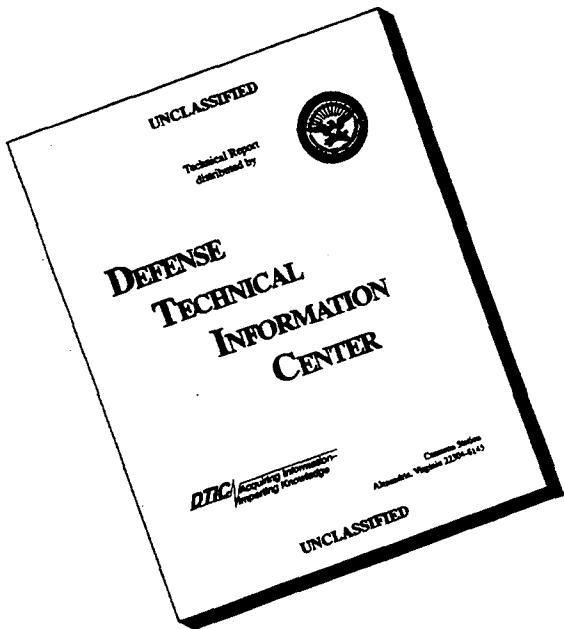
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13. ABSTRACT (Maximum 200 words) Many current and proposed arms control agreements have on-site inspection requirements. Several government facilities and private firms may be subject to these agreement-mandated on-site inspections. Sandia National Laboratories and Ogden Environmental and Energy Services have developed a PC-based on-site inspection training tool, the Augmented Computer Exercise for Inspection Training (ACE-IT), that provides hands-on experience with the procedures used in inspecting and hosting international inspections. ACE-IT allows participants to view rooms and remove shrouds, disparate inspection-relevant data to be geographically referenced, all data sources to be reached from a single interface, and the exercise to stay on schedule by using a control clock.			
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# “Augmented Computer Exercise for Inspection Training” (ACE-IT)

## A PC-Based On-Site Inspection Training Tool

*This work was supported by the United States Department of Energy under Contract DE-AC04-94AL85000.*





# Inspection Training Goals

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- Learn how to conduct an inspection
  - Collect information so that compliance can be determined
  - Balance the obligation to demonstrate compliance with the need to protect sensitive information unrelated to the agreement
  - Manage time during an inspection (*including planning*)
- Learn how on-site inspection provisions impact compliance determination and protection of sensitive information



# ACE-IT Features

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- Interactive computer program
- Geographic Information System (GIS) – *information organized by location for each room in a building*
- Exercise clock to control the exercise -- *generates deadline pressures & tracks events*
- Photographic tour to allow participants to “feel” like they are actually in the rooms
- Inspection “hints” provided throughout
- Accompanying “CWC Exercise Packages”
- Log of inspection





## ACE-IT Features (*continued*)

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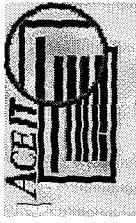
- Perimeter monitoring technologies
- Maps for negotiating the perimeter
- “Managed Access” negotiation techniques:
  - Physical access -- *Inspection Team cannot view areas or information until the inspected Party grants permission*
  - Shrouding -- *including partial unshrouding*
  - Alternate information -- *chemical sampling, proprietary databases, hazardous waste databases, & equipment inventories*
- Chemical Weapons Convention (CWC) challenge inspection currently implemented; can be modified for other regimes



# CWC Challenge Inspection

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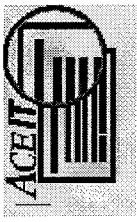
- Notification of “challenge inspection”
- Arrive at Point of Entry and specify site
- Inspected Party monitors requested perimeter
- Negotiate “alternate” perimeter
- Travel to site
- Negotiate “final” perimeter
- Pre-inspection briefing
- Inspection Team monitors “final” perimeter
- Inspection
- Post-inspection procedures
- Site post-inspection procedures



# Demonstration

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- The remainder of the demonstration describes how **ACE-IT** can be used to conduct a “challenge inspection” under the Chemical Weapons Convention.
- Although three buildings and all the rooms can be inspected -- for this demonstration, only one room in one building will be inspected.



## Moderator ACE II Control Module

6/9	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5
1	Notification of challenge inspection																					
2	Arrive at Point of Entry/Specify Site																					
3	Inspected Perimeter Monitors Requested																					
4	Negotiate Alternative perimeter																					
5	Travel to site																					
6	Inspection Team Monitors Perimeter																					
7	Negotiate Final Perimeter																					
8	Pre-Inspection Briefing																					
9	Inspection																					
10	Post-inspection Procedures																					
11	Site post-inspection procedures																					

### INSPECTORS MONITOR MENU

- Lock & seal exits
- Secure site / exit monitoring
- Personnel at exit
- Traffic logs
- Patrol perimeter
- Detection sensor at exits
- Camera at exits
- Camera around perimeter
- Chemical sample analysis

Event Duration      Exercise Duration (minutes)

180 Hours

15

Elapsed Time      Event Time Remaining (minutes)

1:02:02

15

### CWC 4-hour

Scenario      Start      Stop      Exit      More Info

Select Options

Save Notes

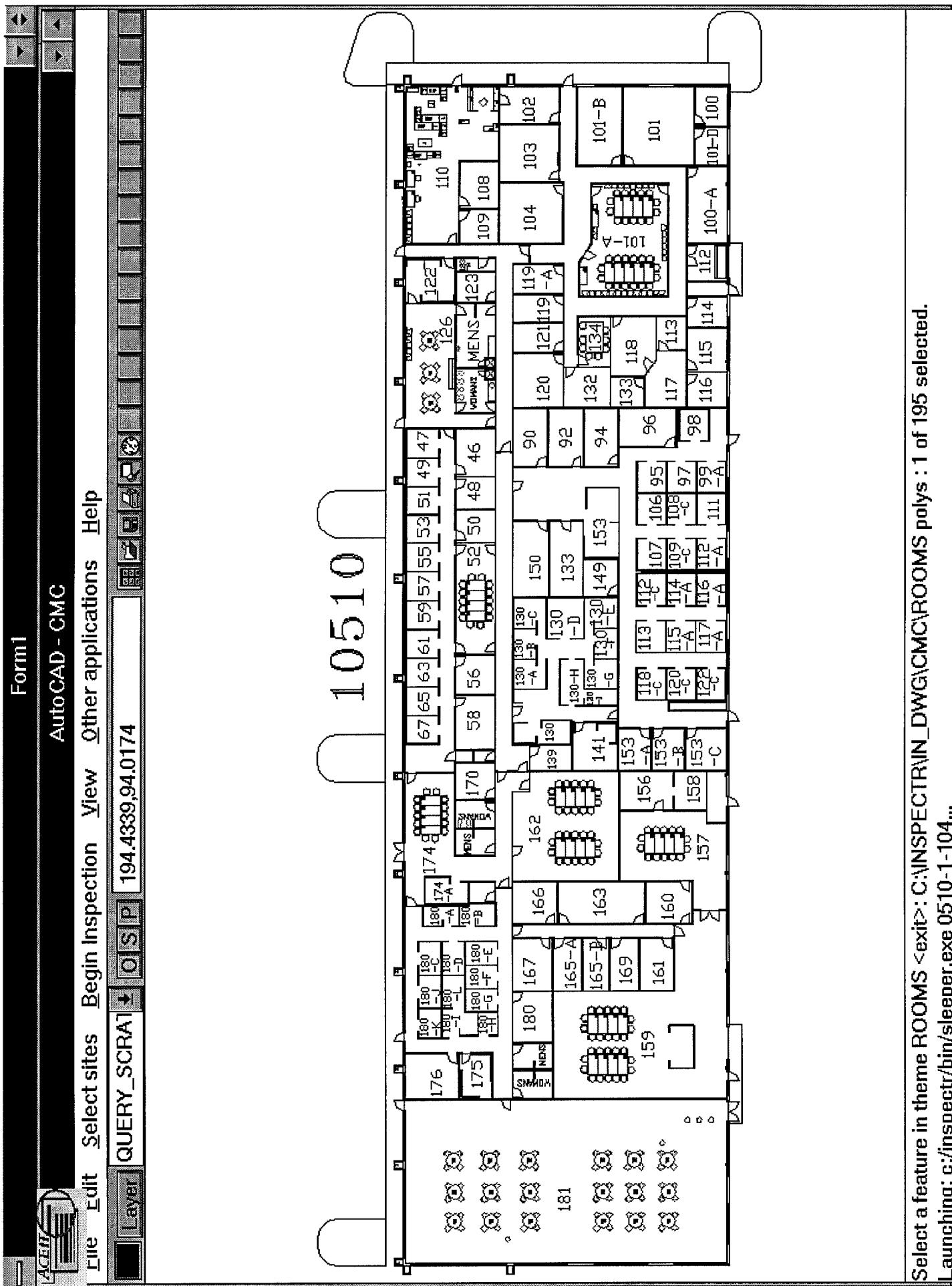
6/14/96  
12:30 AM.

© 12 Hour Clock  
© 24 Hour Clock

Reset

Jump

Load



Select a feature in theme ROOMS <exit>: C:\INSPECTR\IN\_DWG\CMC\ROOMS polys : 1 of 195 selected.  
Launching: c:\inspectr\bin\sleeper.exe 0510-1-104...

## Inspected Party Receives Request



The inspection Team has requested access to room 0510-1-103

- Grant Inspectors Access
- Deny Inspectors Access
- Offer Inspectors Partial Access

- Review Alternate Information for this location

### Comments/Justification

The entrance to the room is large enough to admit a treaty limited item.

### Moderator Comments/Recommendations

None

**Send Response**

**Prints**

### Inspected Party Requests Document



Preview Room

1. Grant Access if no sensitive items or information will be compromised.
2. Consider Denying Access if sensitive items or information would be compromised
3. Consider allowing Partial Access if viewing the location from window or doorway will provide the inspection team with adequate information.
4. Consider providing alternate information about the location rather than allowing the inspection team access.

The inspection Team has requested

- Grant Inspectors Access
- Deny Inspectors Access
- Offer Inspectors Partial Access

Cancel

Call Another Player

Review Alternate Information for this location

### Comments/Justification

The entrance to the room is large enough to admit a treaty limited item.

### Moderator Comments/Recommendations

None

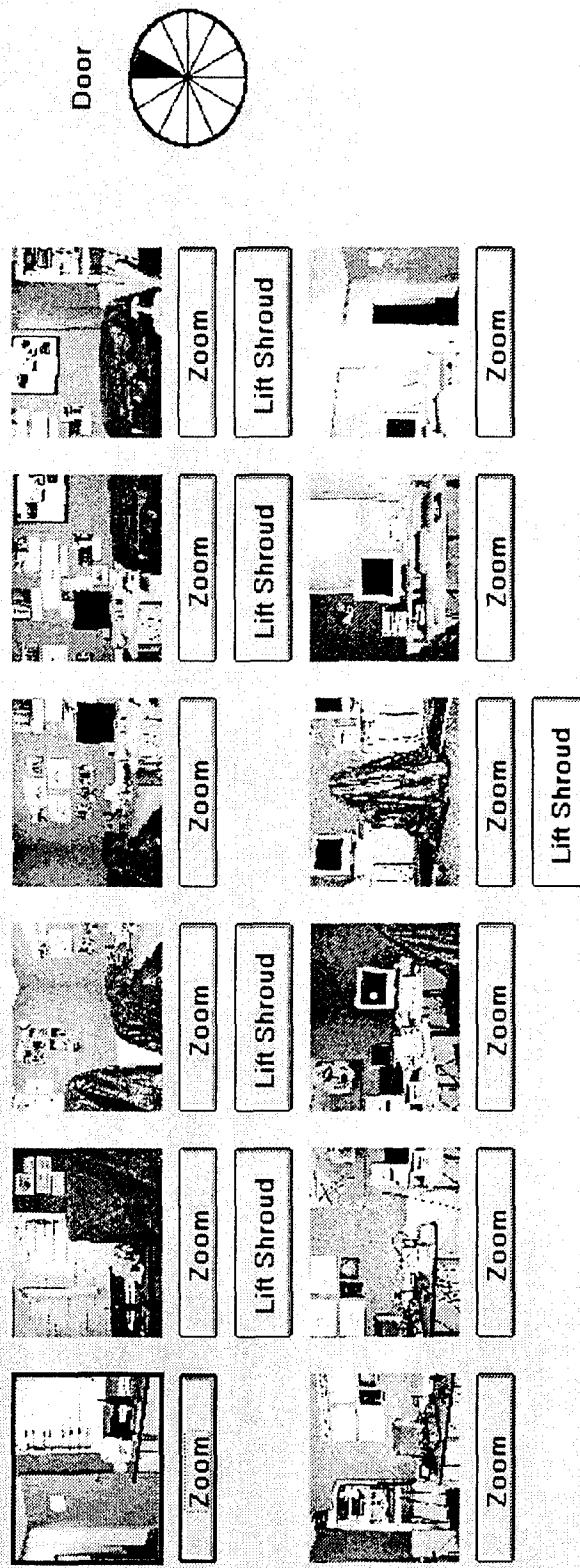
Send Response

Items

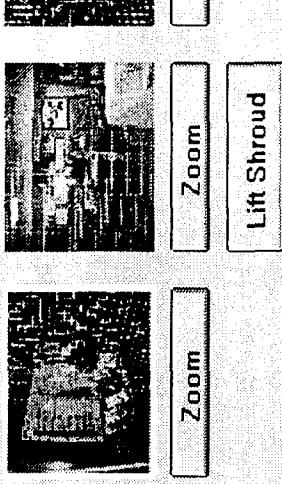
## Inspected Party Previews Room



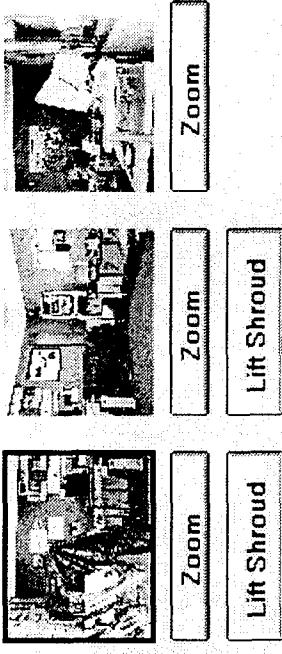
View From Center. 360 degrees Clockwise. Door to Door (Angle Measured from Door)



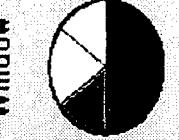
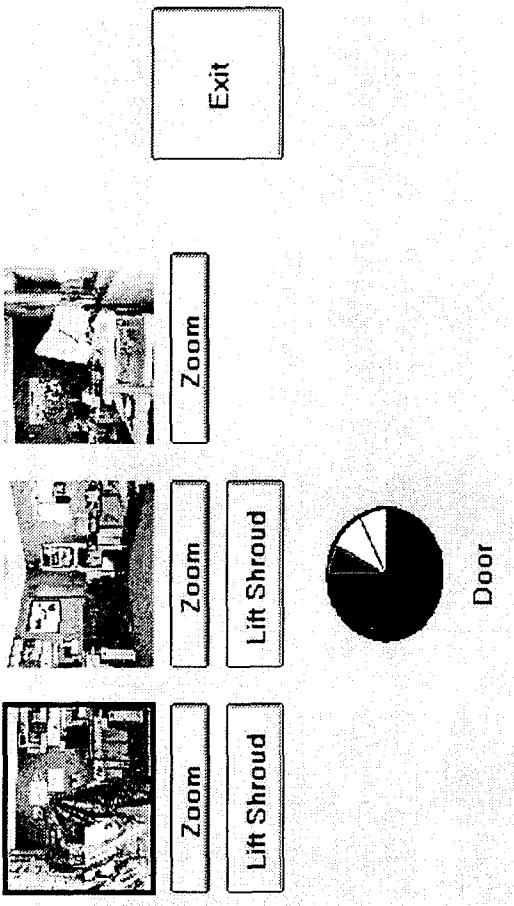
View Through Window. Right to Left (Angle Measured from Right)



View From Door. Right to Left (Angle Measured from Right)



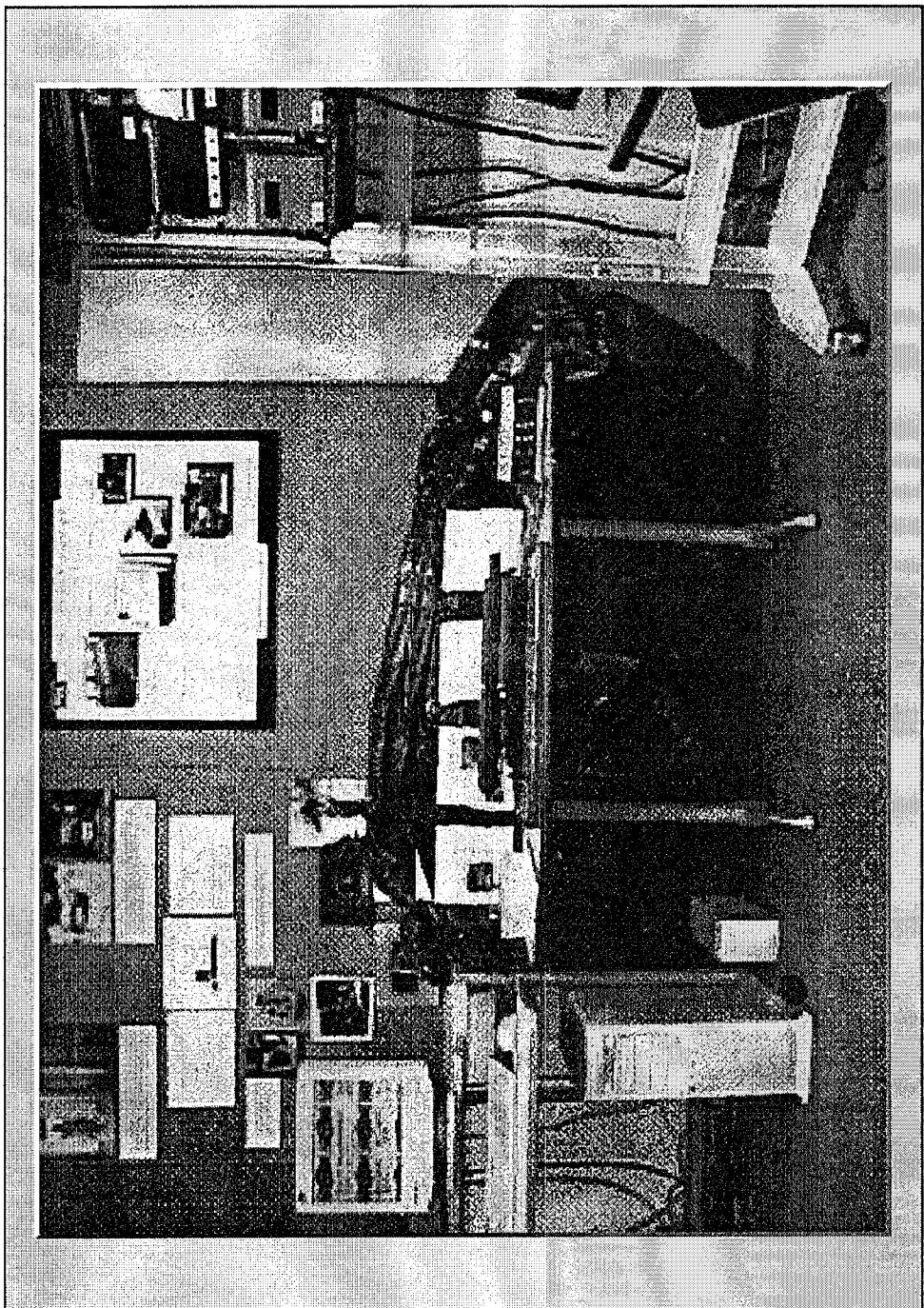
View From Door. Right to Left (Angle Measured from Right)



Door

## Inspected Party Previews Shrouded Item

Table with radiation detection equipment & gas chromatograph.  
Height: 72 cm.  
Width: 76 cm.  
Length: 152 cm.  
Radiation detection equipment.  
Classified.  
Height: 8 cm.  
Width: 12 cm.  
Length: 20 cm. Gas chromatograph (commercially available, item of concern (may cause compliance questions during a CWC inspection).  
Height: 15 cm.  
Width: 25 cm.  
Length: 37 cm



Play

Cancel

100 Percent

### Inspected Party Responds to Request



The inspection Team has requested access to room 0510-1-103



View through Door

View through Window

Please Provide a Justification for Granting Only Partial Access

The entire room can be seen from the window and door.

Moderator Comments/Recommendations

None

### Inspection Team Receives Partial Access



Request for access to 510-1-103 has been limited to viewing through the door and/or window only. Please click on Continue to accept this level of access, Repeat Access Request to negotiate further access to this room.

#### Host Justification

The entire room can be seen from the window and door.

#### Moderator Comments/Recommendations

None

Continue	Repeat Access Request	Home
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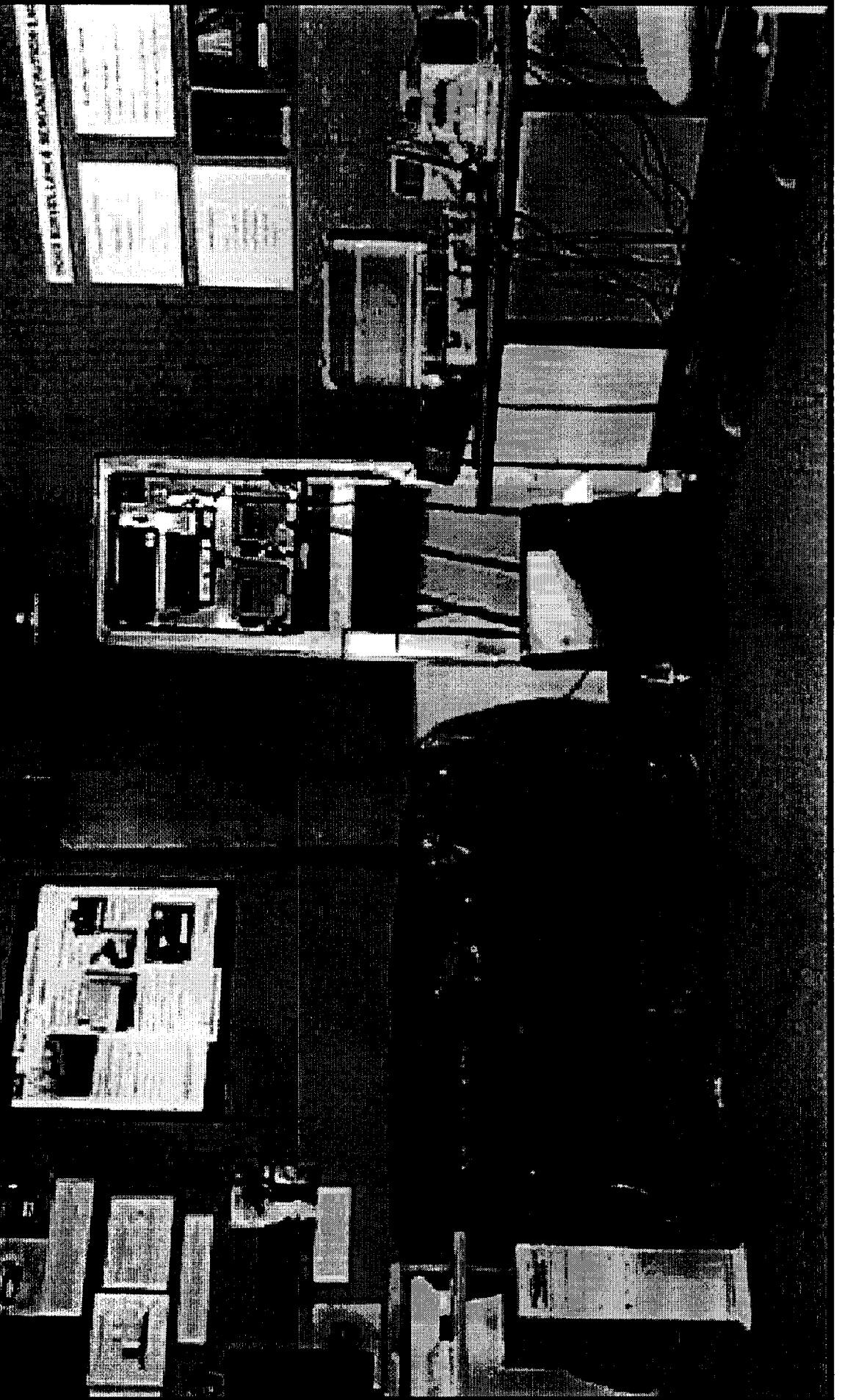


View From Door 45 degrees from right

Double Click to Clear

Pan Right

Pan Left



View From Door 15 degrees from right

Door 15

Pan Left

Pan Right



## Inspected Party Receives Next Request



The inspection Team has requested access to room 0510-1-103

Grant Inspectors Access

Deny Inspectors Access

Offer Inspectors Partial Access

Review Alternate Information for this location

### Comments/Justification

The left corner of the room is not visible from the window or door, and there are large shrouded objects of concern in the room.

### Moderator Comments/Recommendations

None

Flats

## Inspection Team Receives Full Access



Request for access to 510-1-103 has been granted. Please click on Continue.

### Moderator Comments/Recommendations

None

[Continue](#)

[Hints](#)

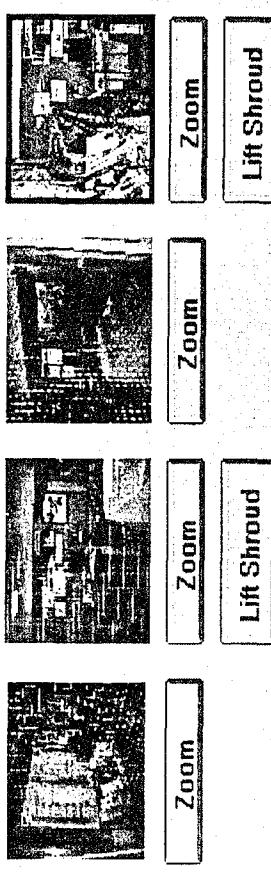
## Inspected Party Views Full Access to Room



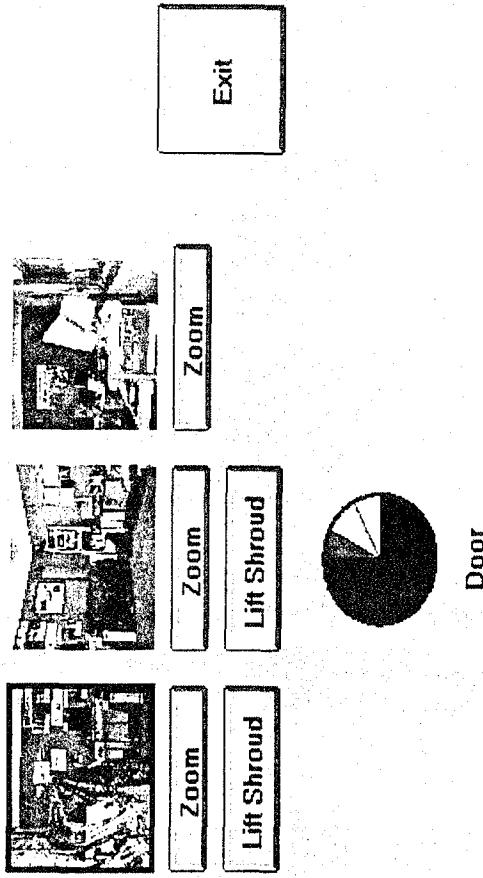
**View From Center: 360 degrees Clockwise: Door to Door (Angle Measured from Door)**



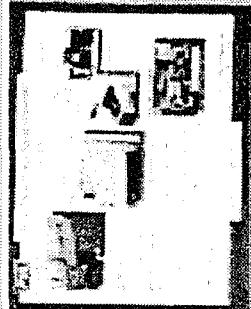
**View Through Window, Right to Left (Angle Measured from Right)**



**View From Door, Right to Left (Angle Measured from Right)**



Inspection Team Requests Permission to Lift Shroud



Stand

Exit

Home

Comments

Please unshroud this object.



## Inspected Party Grants Permission to Lift Shroud 50%



Table with radiation detection equipment & gas chromatograph.  
Height: 72 cm.  
Width: 76 cm.  
Length: 152 cm.  
Radiation detection equipment classified.  
Height: 8 cm.  
Width: 12 cm.  
Length: 20 cm. Gas chromatograph (commercially available, item of concern (may cause compliance questions during a CWC inspection)).

Play

Send

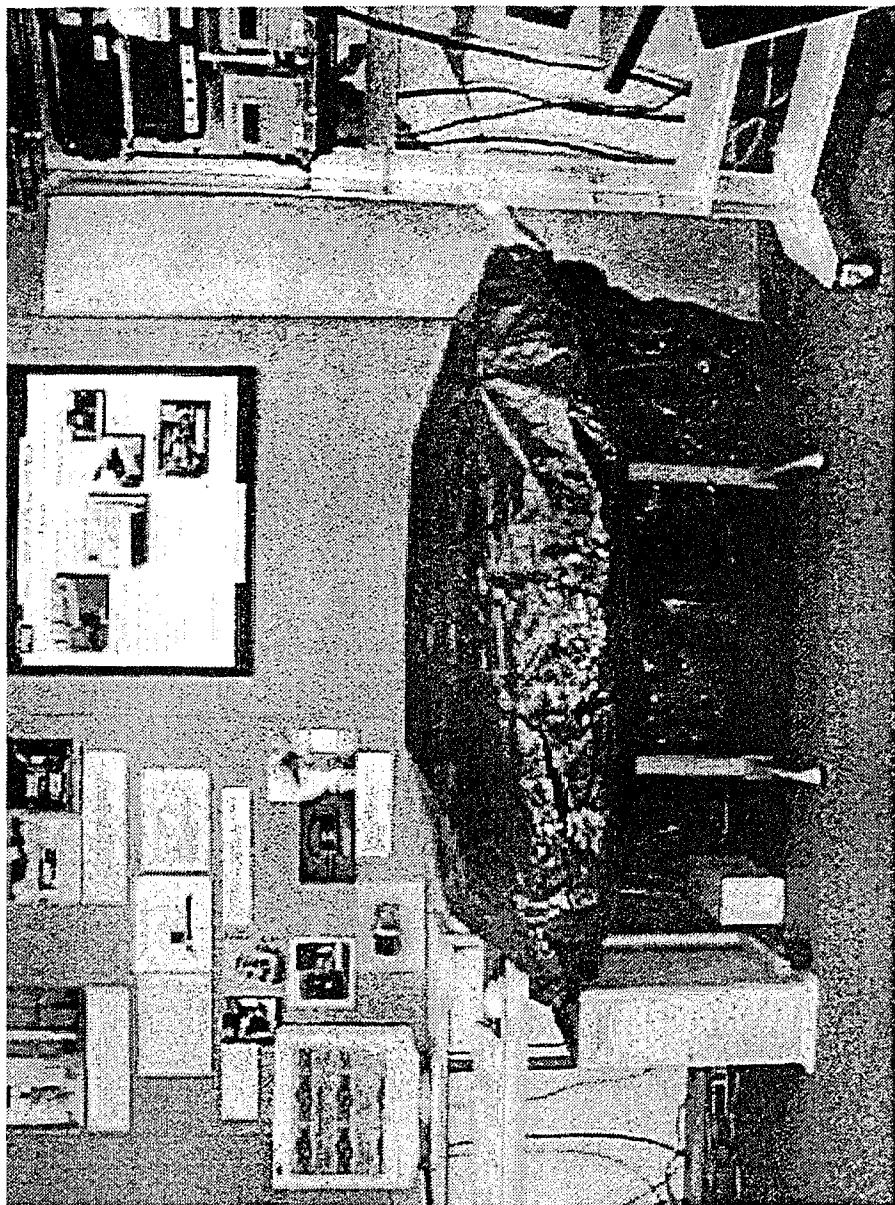
Request Denied

50 Percent

Comments

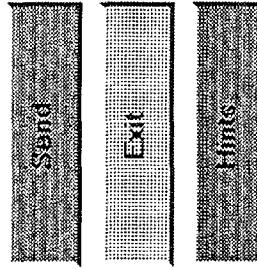
The object will be partially unshrouded

Inspection Team Views 50 % Lift of Shroud



The object will be partially unshrouded

Comments

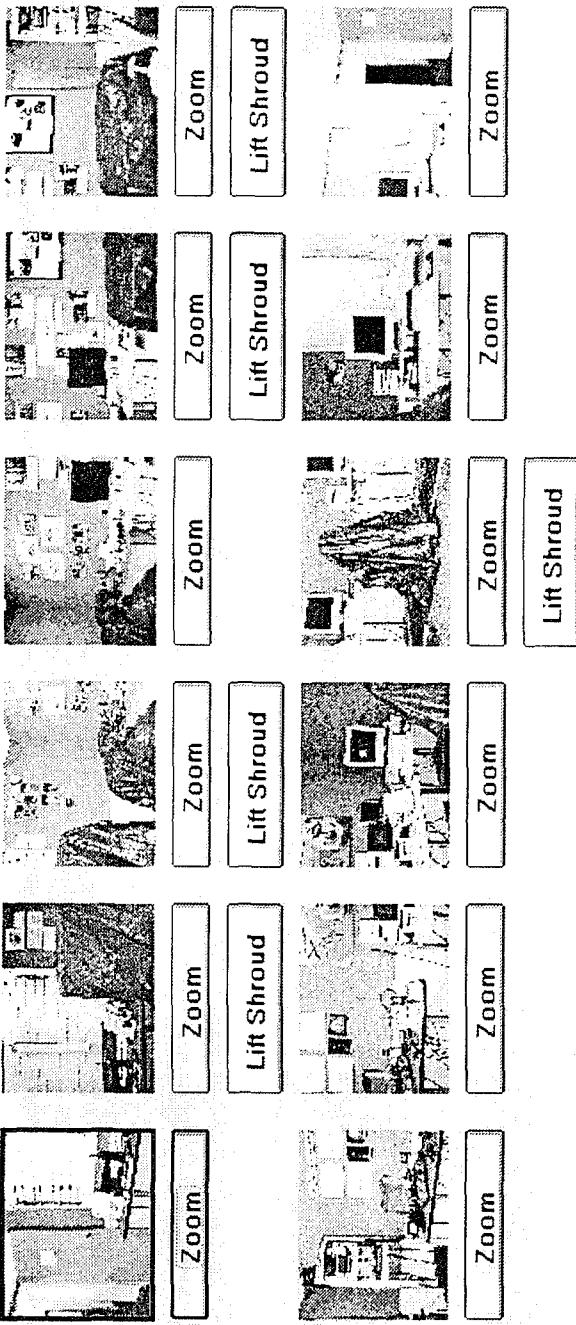
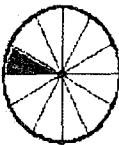


## Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)

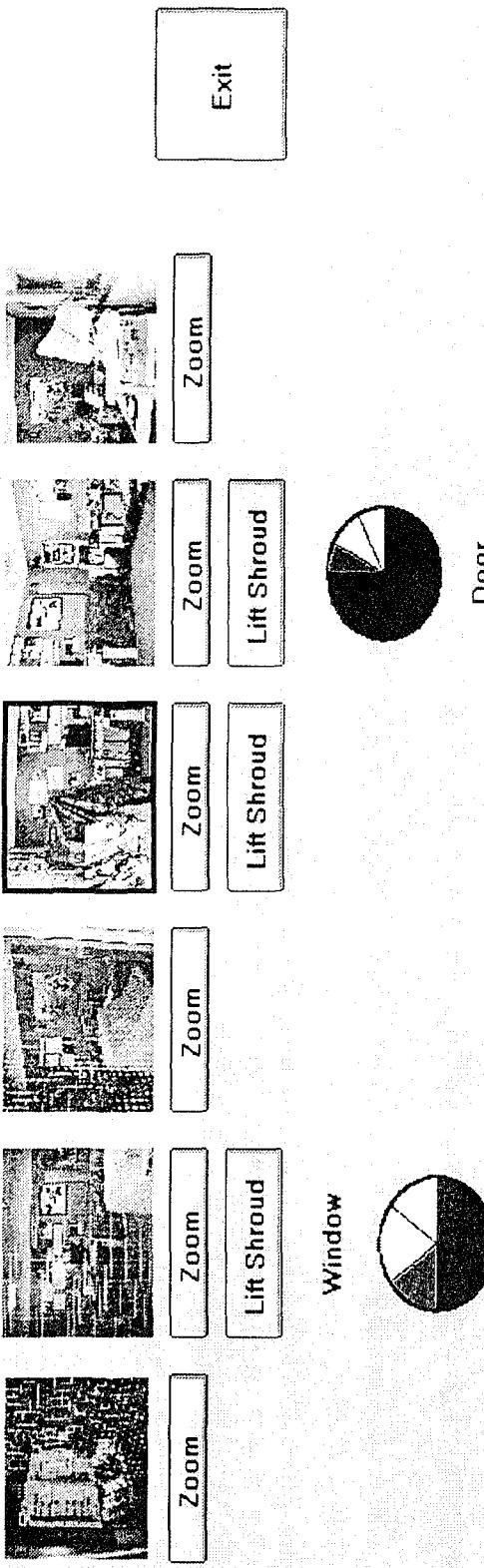


Door



View Through Window, Right to Left (Angle Measured from Right)

View From Door, Right to Left (Angle Measured from Right)



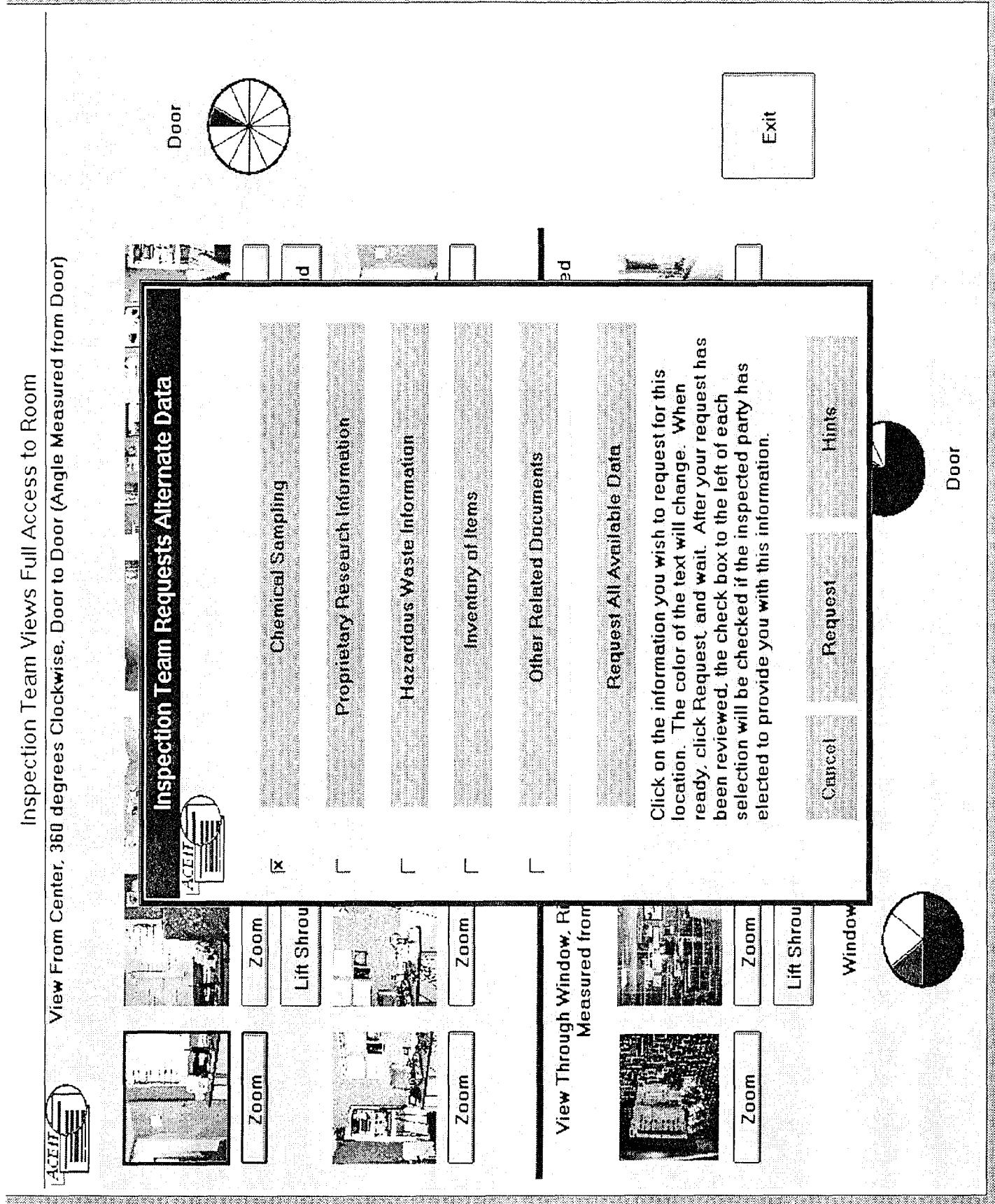
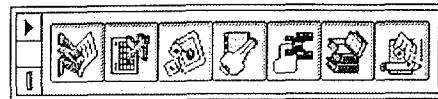
Window

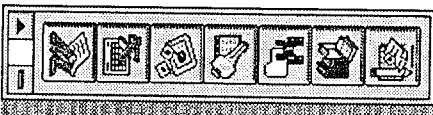


Door

## Inspection Team Views Full Access to Room

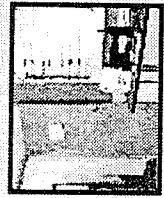
View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)



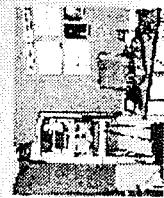


Inspection Team Views Full Access to Room

View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)



Zoom



Zoom

View Through W  
Meas



Zoom

### Inspection Team Requests Chemical Sample

#### Sample ID

Sample ID 510-1  
Time 12:14:42 PM  
Date 6/14/96

Site CMC  
Building 510  
Room 103

#### Sample Type

(Select only one type)

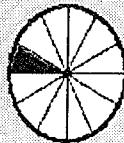
Soil Sample  Wipe/Other Solid  Air Filter  
 Water Sample  Process Sample

#### Analysis Type

(Select only one type)

Chemical  Biological  Radiological  
 OK  Cancel

Door



Exit

Door



Inspection Team Views Full Access to Room  
View From Center, 360 degrees Clockwise, Door to Door (Angle Measured from Door)

**Chemical Sampling Results**

Sample ID:	510-1	Site:	CMC
Time:	12:14:46 PM	Building:	510
Date:	6/14/96	Room:	103
Sample Type:	Wipe/Other Solid	Analysis:	Chemical

**No chemical items detected**

**Door**

**Quit**

**View**

**Zo**

**Zo**

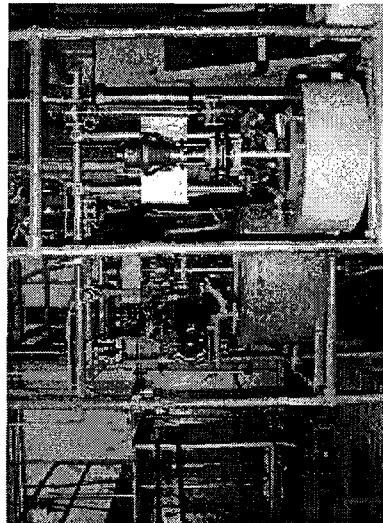
**Zo**

## Other Buildings

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Two other buildings are available in ACE-IT

- A "single small-scale facility"



- An office building



# Summary

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**ACE-IT** provides a realistic inspection training tool that can be used

- to learn how to conduct an inspection, and
- to learn how on-site inspection provisions impact compliance determination and protection of sensitive information

